Page 6H-18 Typical Traffic Control Shoulder Closure with Barrier Operation

(Figure TTC-6.0) **NOTES** 

August 2011

## Guidance:

1. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.

## Standard: 2. On divided highways having a median wider than 8', right and left sign assemblies shall be

3. Group 2 channelizing device spacing shall be at the following:

Lacation	Posted Speed Limit (mph)		
Location	0 - 35	36 +	
Transition Spacing	20'	40'	
Travelway Spacing	40'	80'	

- 4. The minimum length for a shoulder taper should be 320' on Limited Access highways, and 1/3 L
- for all other roadways (see Note 7 of TTC-5 for values of L). 5 Regrier transition slope ratio shall be as follow

S. Bar	s. Barrier transition slope ratio snall be as follows:								
	Speed Limit (mph)	Slope Ratio	Speed Limit (mph)	Slope Ratio	Speed Limit (mph)	Slope Ratio			
	70	22:1	55	17:1	40	13:1			
	65	20:1	50	16:1	35	11:1			
	60	19:1	45	14:1	≤30	10:1			

When the barrier transition slope is on a horizontal alignment, the total offset shall be prorated around the curve in lieu of a straight-line slope.

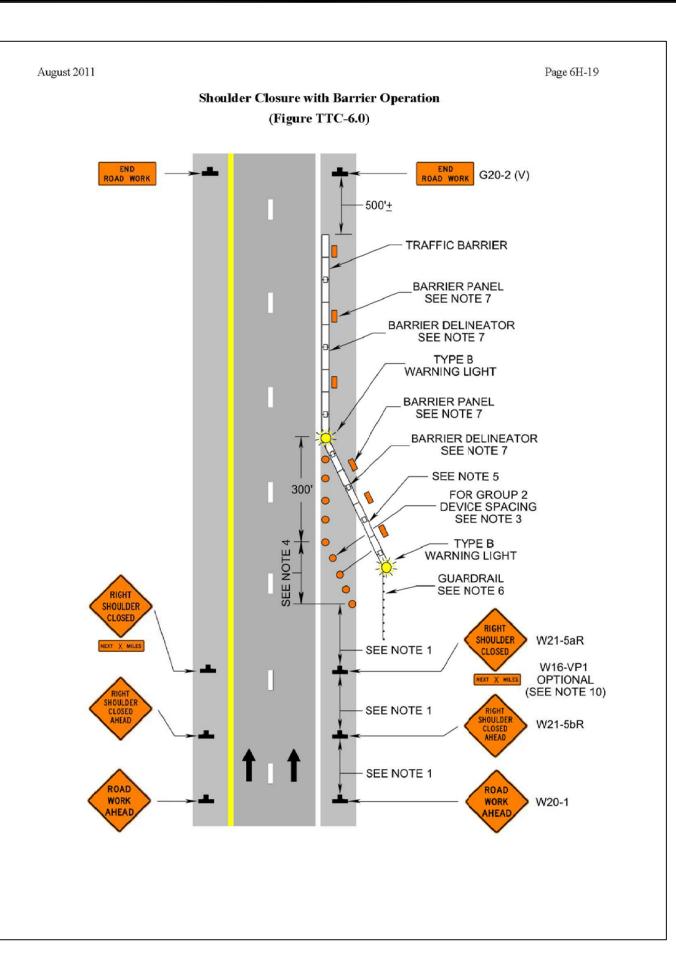
- 6. End treatment of a barrier in order of preference:
- a. Where guardrail exists, attach to barrier with appropriate fixed object attachment. b. Where cut slope exists, bury barrier into cut slope and provide for drainage as needed.
- c. Extend end of barrier until it is beyond the established clear zone (see Figure 2 on Page A-4 in Appendix A for clear zone values).
- d. When barrier end is inside the established clear zone, attenuator service Type I or Type II
- shall be used. Contact L&D Standards/Special Design Section for approved attenuators. 7. Barrier panels 8 inches in width and 12 inches in height shall be placed on top of the concrete barrier and spaced 80' on centers along the parallel or tangent sections and 40' on centers along the transition or taper sections. Reflectorized surface shall be fluorescent orange prismatic lens sheeting. The light at the beginning of the barrier run and at the breakpoint where the barrier becomes parallel to the roadway shall be a Type B flashing light. Barrier delineators shall be installed along the traffic side of the concrete barriers in-between and at the same spacing as the barrier panels approximately 24 inches up from the roadway surface.

## Option:

- 8. The barrier shown in this typical application is an example of one method that may be used to close a shoulder of a long-term project.
- 9. The RIGHT SHOULDER CLOSED (W21-5aR) sign may be eliminated from all roadways except Limited Access highways.

### Guidance:

- 10. If drivers cannot see a pull-off area beyond the closed shoulder, information regarding the length of the shoulder closure shall be provided in feet or miles, as appropriate.
- 11. An emergency pull-off area should be provided per Section 6G.18 and Temporary Traffic Control
- Figure TTC-8.



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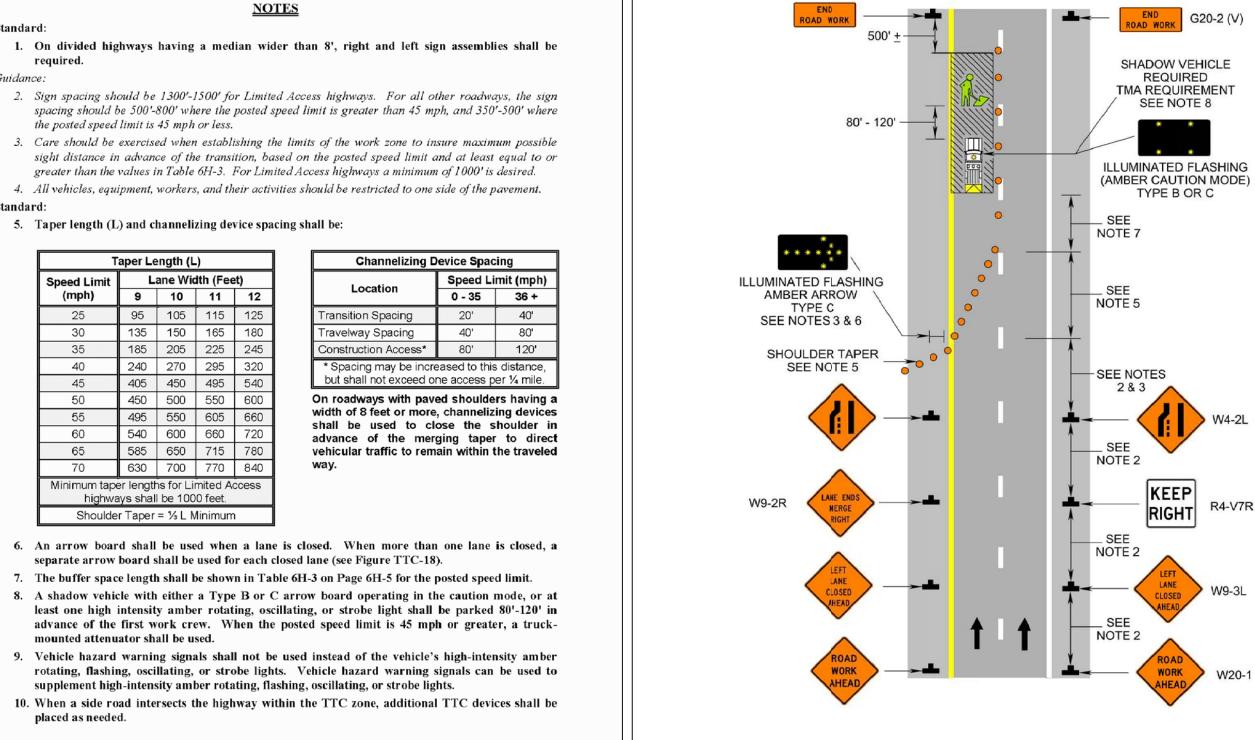
Guidance:

Standard:

**Typical Traffic Control** 

Inside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-17.0)



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# Typical Traffic Control Outside Lane Closure Operation on a Four-Lane Roadway (Figure TTC-16.0)

1. On divided highways having a median wider than 8', right and left sign assemblies shall be required.

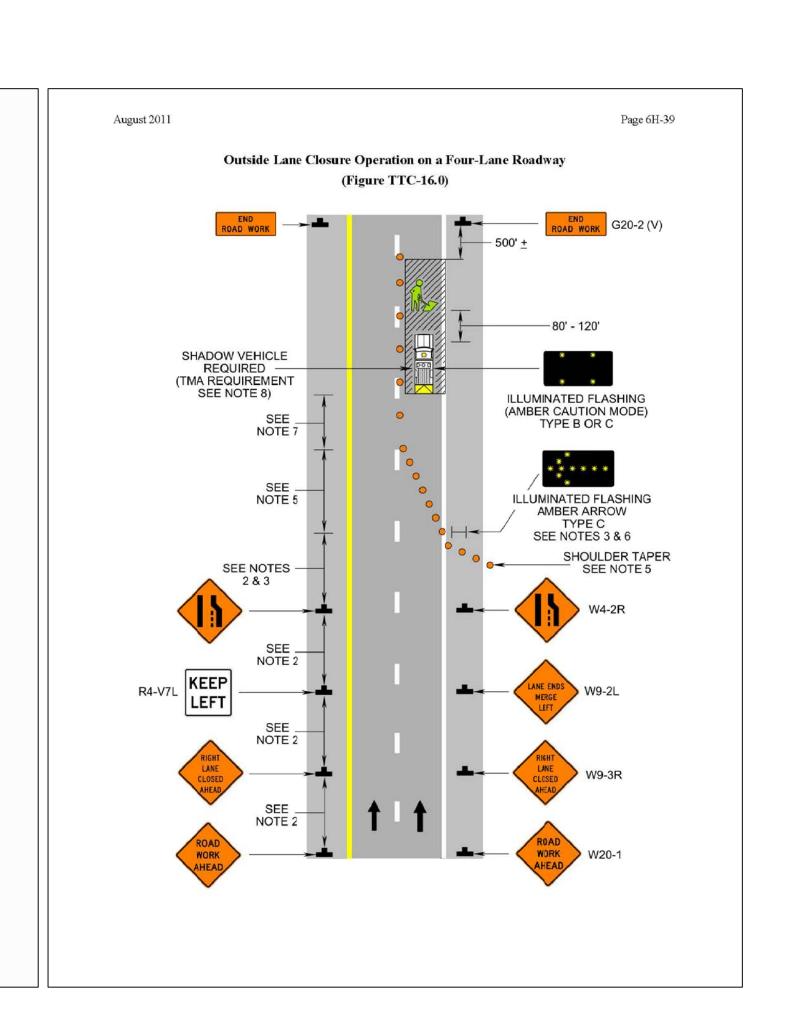
- 2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
- 3. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired. 4. All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.

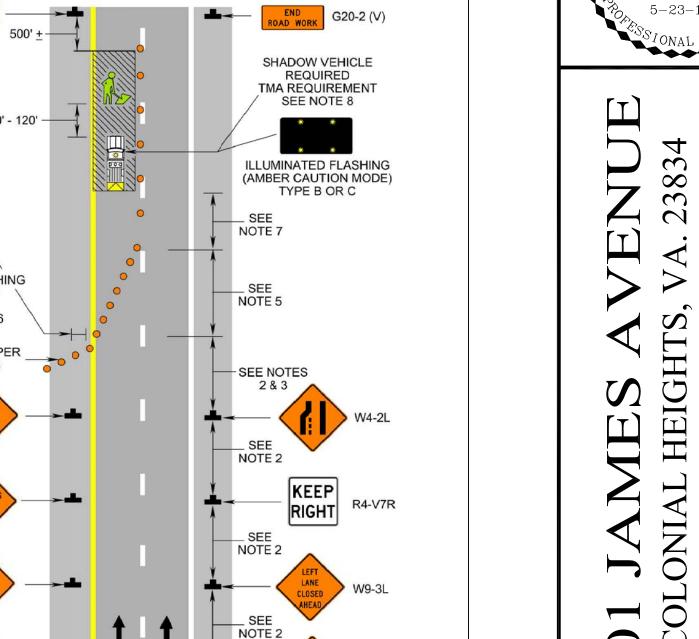
## Standard: 5. Taper Length (L) and Channelizing Device Spacing shall be:

Taper Length (L)					
Speed Limit	Lane Width (Feet)				
(mph)	9	10	11	12	
25	95	105	115	125	
30	135	150	165	180	
35	185	205	225	245	
40	240	270	295	320	
45	405	450	495	540	
50	450	500	550	600	
55	495	550	605	660	
60	540	600	660	720	
65	585	650	715	780	
70	630	700	770	840	
Minimum taper lengths for Limited Access highways shall be 1000 feet.					
Shoulder Taper = 1/₃ L Minimum					

Channelizing Device Spacing					
Looption	Speed Limit (mph)				
Location	0 - 35	36+			
Transition Spacing	20'	40'			
Travelway Spacing	40'	80'			
Construction Access*	80'	120'			
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.					
On roadways with paved shoulders having width of 8 feet or more, channelizing device shall be used to close the shoulder i					
shall be used to clo	ose the s	houlder ii			

- 6. An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).
- 7. The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
- 8. A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, oscillating, or amber strobe light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-
- mounted attenuator shall be used. 9. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, oscillating, or strobe lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, oscillating, or strobe lights.
- 10. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.





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Inside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-17.0)



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SUBMITTAL DATE

NOVEMBER 21, 2013

REVISION

S. EDWARDS DESIGNED S. EDWARDS **CHECKED** B. COPPLE

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